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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1645	

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,618	JUDD ET AL.	
	Examiner	Art Unit	
	S. Devi, Ph.D.	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21,25 and 30-54* is/are pending in the application.

4a) Of the above claim(s) *47-49 and 54* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21,25,30-46 and 50-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *020606*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Sequence report (one)*.

RESPONSE TO APPLICANTS' AMENDMENT

Applicants' Amendment

1) Acknowledgment is made of Applicants' amendment filed 02/06/06 in response to the non-final Office Action mailed 08/05/05. With this, Applicants have amended the specification and the claims.

Status of Claims

2) Claims 2-7, 17, 18, 22-24 and 26-29 have been canceled via the amendment filed 02/06/06.

Claims 21 and 25 have been amended via the amendment filed 02/06/06.

New claims 30-54 have been added via the amendment filed 02/06/06.

Claims 21, 25 and 30-54 are pending.

Claims 47-49 and 54 have been withdrawn from consideration as not being directed to the elected invention. See 37 C.F.R 1.142(b) and M.P.E.P § 821.03.

Claims 21, 25, 30-46 and 50-53 are under examination.

Information Disclosure Statement

3) Acknowledgment is made of Applicants' Information Disclosure Statement filed 02/06/06. The information referred to therein has been considered and a signed copy is attached to this Office Action.

Declarations under 37 CFR 1.132 / 1.131

4) Acknowledgment is made of Applicants' submission of the Judd declarations filed 02/06/06 under 37 C.F.R § 1.131 and 1.132. The Declarations have been fully considered.

The 132 Judd Declaration presents evidence showing the generation of hyperimmune antisera in rabbits using the first 178 amino acids of SEQ ID NO: 4 as the immunogen, a sequence substantially conserved in Omp85 proteins of both *N. meningitidis* and *N. gonorrhoeae*. Fab fragments from the antisera when added *in vitro* to wells containing a confluent layer of Chang conjunctival mammalian epithelial cells followed by the addition of a specific *N. gonorrhoeae* strain, showed binding to the surface of the bacteria. The declarant states that the Omp85-specific antibodies interfere with the ability of the bacteria to adhere to the epithelial cells. With this, it is concluded that: (a) The Omp85-specific antibodies generated to

'a fragment' of SEQ ID NO: 4 can block the infection-initiating step; (b) The assay results indicate that the polypeptide can be used to generate antibodies in a mammal, which can interfere with the process by which the bacteria infects the epithelial cells of the mammalian subject to cause disease; and (c) The polypeptides and fragments of this invention can mediate a protective immune response to infection of a mammal by the bacteria.

Prior Citation of Title 35 Sections

5) The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior Office Action.

Prior Citation of References

6) The references cited or used as prior art in support of one or more rejections in the instant Office Action and not included on an attached form PTO-892 or form PTO-1449 have been previously cited and made of record.

Objection(s) Moot

7) The objection to the specification made in paragraphs 7(b) and 7(c) of the Office Action mailed 08/05/05 is moot in light of Applicants' cancellation of claims 7 and 29.

Objection(s) Withdrawn

8) The objection to the specification made in paragraph 7(a) of the Office Action mailed 08/05/05 is withdrawn in light of Applicants' amendment to the specification.

Rejection(s) Moot

9) The rejection of claims 3 and 6 made in paragraph 9 of the Office Action mailed 08/05/05 under the judicially created doctrine of obviousness-type double patenting over claim 1 of the U.S. patent 6,610,306, is moot in light of Applicants' cancellation of the claims.

10) The rejection of claims 22, 23 and those that depend from these claims made in paragraph 10 of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, first paragraph, as containing new subject matter, is moot in light of Applicants' cancellation of the claims.

11) The rejection of claims 26, 27, 2, 3 and those dependent therefrom made in paragraph 11 of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, first paragraph, as containing inadequate written description, is moot in light of Applicants' cancellation of the claims.

12) The rejection of claims 26-29, 2-7, 17 and 18 made in paragraph 12 of the Office Action

mailed 08/05/05 under 35 U.S.C § 112, first paragraph, as being non-enabled with regard to the scope, is moot in light of Applicants' cancellation of the claims.

13) The rejection of claims 26, 27, 2 and 3 made in paragraph 14(a) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is moot in light of Applicants' cancellation of the claims.

14) The rejection of claim 2 made in paragraph 14(c) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is moot in light of Applicants' cancellation of the claim.

15) The rejection of claims 3 and 27 made in paragraphs 14(d) and 14(e) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is moot in light of Applicants' cancellation of the claims.

16) The rejection of claim 5 made in paragraph 14(f) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is moot in light of Applicants' cancellation of the claim.

17) The rejection of claims 2-7, 17, 18, 22-24 and 26-29 made in paragraph 14(g) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is moot in light of Applicants' cancellation of the claims.

18) The rejection of claims 22-24 and 2-7 made in paragraph 16 of the Office Action mailed 08/05/05 under 35 U.S.C § 102(a) as being anticipated by Manning *et al.* (*Microb. Pathogenesis.* 25: 11-22, July 1998 - Applicants' IDS) (Manning *et al.*, 1998) in light of Richarme *et al.* (*Ann. Microbiol.* 133A: 199-204, 1982 – Applicants' IDS), is moot in light of Applicants' cancellation of the claims.

19) The rejection of claims 22-24, 26, 2, 4, 5, 17 and 18 made in paragraph 17 of the Office Action mailed 08/05/05 under 35 U.S.C § 102(b) as being anticipated by Chong *et al.* (WO 94/12641) ('641) as evidenced by Harlow *et al.* (*In*: *Antibodies*: *A laboratory Manual.* Cold Spring Harbor Laboratory, Chapter 5, p. 76, 1988), Piwnica-Worms (US 6,348,185) or *Protein Sequences on STN* (page 12), is moot in light of Applicants' cancellation of the claims.

20) The rejection of claims 26-29, 17 and 18 made in paragraph 19 of the Office Action mailed 08/05/05 under 35 U.S.C § 103(a) as being unpatentable over Manning *et al.* (*Microb.*

Pathogenesis. 25: 11-22, July 1998 - Applicants' IDS) (Manning *et al.*, 1998), is moot in light of Applicants' cancellation of the claims.

Rejection(s) Withdrawn

21) The rejection of claims 21, 25 and those that depend from these claims made in paragraph 10 of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, first paragraph, as containing new subject matter, is withdrawn in light of Applicants' amendment to the claims.

22) The rejection of claims 21, 25 and those dependent therefrom made in paragraph 11 of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, first paragraph, as containing inadequate written description, is withdrawn in light of Applicants' amendment to the claims.

23) The rejection of claims 21 and 25 made in paragraph 12 of the Office Action mailed 08/05/05 under 35 U.S.C § 112, first paragraph, as being non-enabled with regard to the scope, is withdrawn in light of Applicants' amendment to the claims.

24) The rejection of claims 21 and 25 made in paragraphs 14(a) and 14(g) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claims.

25) The rejection of claim 21 made in paragraph 14(b) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claim.

26) The rejection of claim 25 made in paragraph 14(c) of the Office Action mailed 08/05/05 under 35 U.S.C. § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claim.

27) The rejection of claim 21 made in paragraph 16 of the Office Action mailed 08/05/05 under 35 U.S.C § 102(a) as being anticipated by Manning *et al.* (*Microb. Pathogenesis*. 25: 11-22, July 1998 - Applicants' IDS) (Manning *et al.*, 1998) in light of Richarme *et al.* (*Ann. Microbiol.* 133A: 199-204, 1982 – Applicants' IDS), is withdrawn in light of Applicants' submission of the Rule 131 Declaration showing that the reference of Manning *et al.* (1998) is not the work of another.

28) The rejection of claims 21 and 25 made in paragraph 17 of the Office Action mailed 08/05/05 under 35 U.S.C § 102(b) as being anticipated by Chong *et al.* (WO 94/12641) ('641) as

evidenced by Harlow *et al.* (*In*: *Antibodies*: *A laboratory Manual*. Cold Spring Harbor Laboratory, Chapter 5, p. 76, 1988), Piwnica-Worms (US 6,348,185) or *Protein Sequences on STN* (page 12), is withdrawn in light of Applicants' amendment to the claims.

29) The rejection of claim 25 made in paragraph 19 of the Office Action mailed 08/05/05 under 35 U.S.C § 103(a) as being unpatentable over Manning *et al.* (*Microb. Pathogenesis*. 25: 11-22, July 1998 - Applicants' IDS) (Manning *et al.*, 1998), is withdrawn in light of Applicants' submission of the Rule 131 Declaration showing that the reference of Manning *et al.* (1998) is not the work of another.

Rejection(s) Maintained

30) The rejection of claim 21 made in paragraph 9 of the Office Action mailed 08/05/05 under the judicially created doctrine of obviousness-type double patenting over claim 1 of the U.S. patent 6,610,306 is maintained for reasons set forth therein.

New Rejection(s) Based on Applicants' Amendment

The new rejections set forth below are necessitated by Applicants' amendments to the claims and Applicants' submission of new claims.

Double Patenting

31) New claims 50, 30 and 31 are rejected under the judicially created doctrine of obviousness-type double patenting over claims 1 and 2 of the U.S. patent 6,610,306 (Applicants' IDS). Although the conflicting claims are not identical, they are not patentably distinct from each other because the polypeptide-containing immunogenic composition of claims 1 and 2 of the U.S. patent 6,610,306 falls within the scope of the instant claims.

Rejection(s) under 35 U.S.C § 112, First Paragraph (New Matter)

32) Claim 21 and those dependent therefrom are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Claim 21, as amended, includes the limitation: a polypeptide comprising at least eight consecutive amino acids from the amino acid sequence of SEQ ID NO: 4, said polypeptide 'present in said composition in an amount effective to induce antibodies that recognize SEQ ID NO: 4' in a mammalian subject and a pharmaceutically acceptable carrier. Applicants point to

page 20, line 24 through page 21, line 4 and lines 17-20 of page 33 of the specification and state that these parts of the specification provide the descriptive support for the new limitations. However, the paragraph bridging pages 20 and 21 of the specification describes fragments of the Omp85 polypeptides, as small as 'about 5-8 amino acids in length', which may represent consecutive amino acids. Lines 17-20 of page 33 describe a 'therapeutic composition' containing 'Omp85 antigen' and a pharmaceutically acceptable carrier. No 'immunogenic composition comprising at least eight consecutive amino acids from the amino acid sequence of SEQ ID NO: 4' said polypeptide present in 'an amount effective to induce antibodies that recognize SEQ ID NO: 4' in a mammalian subject is described in these parts of the specification. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

33) Claims 25 and 38 and those dependent therefrom are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Claim 25, as amended, includes the limitation: diagnostic composition comprising at least eight consecutive amino acids from the amino acid sequence of SEQ ID NO: 4, which polypeptide induces antibodies 'that recognize SEQ ID NO: 4' in a mammalian subject, 'said polypeptide associated with' a suitable detectable label or detection system. New claim 38 includes the limitation: 'The composition according to claim 25, which is a diagnostic kit'. Applicants state that page 29, lines 6 *et seq.* and page 32, line 14 *et seq.* respectively provide the descriptive support for the amendments made to claim 25 and for the new claim 38. However, these parts of the specification do not describe a diagnostic composition comprising the recited polypeptide of the recited specific size that is associated with a suitable detectable label or detection system *and* that is immunogenic in a mammalian subject in that it induces antibodies

that recognize SEQ ID NO: 4 in said mammalian subject, and said composition 'which is a diagnostic kit'. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

34) Claim 39 is rejected under 35 U.S.C. § 112, first paragraph, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claim 39 includes the limitation: composition according to claim 25, wherein said 'polypeptide is associated with nitrocellulose paper or a latex support'. Applicants state that page 29, lines 2 and 29 and page 30, line 1.4 provide descriptive support for the limitations in the new claim. However, while these parts of the specification describe 'purified antigen, fragment .... of antigens' 'electro- or dot-blotted onto nitrocellulose paper' and 'latex beads ... conjugated to the antigen(s) of this invention'. The broad terms 'associated' and 'support' do not have descriptive support in these parts of the specification. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

35) Claims 30, 31, 40 and 41 and those dependent therefrom are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in

such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claims 30 and 40 include the limitations: composition according to claim ..., wherein said composition comprises a second polypeptide or protein. New claims 31 and 41 include the limitation: 'wherein said second polypeptide or protein is fused to said polypeptide'. Applicants state that page 21, lines 27 – page 22, l. 2 and 28-pg. 23, l. 4 of the specification and pg. 22, l. 2-24 of the specification respectively provide the descriptive support for the new claims. However, the paragraph bridging pages 21 and 22 of the specification describes construction of the Omp85 protein or fragments of it using conventional genetic engineering techniques, antigens in combination with outer surface proteins or other proteins or antigens of other pathogens, or fragments of the antigens in combination with each other. This part describes that the antigen may be optionally fused to a selected polypeptide or protein from other microorganisms. The specification at 28-pg. 23, l. 4 describes specific peroxidase, phosphatase, or dehydrogenase in connection with 'antibodies' associated with conventional labels for use in diagnostic assays. These do not provide descriptive support for the now recited composition wherein said composition comprises the broadly recited 'a second polypeptide or protein'. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

36) Claims 32, 33 and 42 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claims 32 and 42 include the limitations: the composition according to claim ..., wherein said second polypeptide or protein is an antigen from a pathogenic species that is

heterologous or homologous to *Neisseriae gonorrhoeae* or *Neisseriae meningitidis*'. Applicants state that pg. 34, l. 12-15 of the specification provide the descriptive support for the new claims. New claim 33 is drawn to the 'immunogenic composition' of claim 21 comprising an adjuvant. Applicants state that page 34, l. 12-15 provides the descriptive support for the new claim 33. However, pg. 34, l. 12-15 of the specification describes 'therapeutic compositions' that may be polyvalent containing therapeutic 'components of bacterial species homologous to *Neisseriae* or heterologous thereto'. An 'immunogenic' or 'diagnostic' composition as claimed currently comprising a 'second polypeptide or protein antigen' from any 'pathogenic species' that is heterologous or homologous to '*Neisseriae gonorrhoeae* or *Neisseriae meningitidis*' lacks descriptive support in this part of the specification. Lines 12-15 of page 34 describe 'therapeutic compositions' comprising adjuvants. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

37) Claims 34-36 and 44-46 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claims 34 and 44 are drawn to the immunogenic and diagnostic composition according to claims 21 and 25 respectively, 'wherein said antibodies also recognize an approximately 85 kD outer membrane protein in multiple *Neisseriae gonorrhoeae* and *meningitidis* strains'. New claims 35 and 45 are drawn to the immunogenic and diagnostic composition according to claims 34 and 44 respectively, 'wherein said *Neisseriae meningitidis* strains are selected from .... MP81'. New claims 36 and 46 are drawn to the immunogenic and diagnostic composition of claims 34 and 44 respectively, 'wherein said *Neisseriae gonorrhoeae* strains are selected from .... F62'. Applicants state that page 51, lines 19 - page 53, line 2; page 25, lines 24

– page 26, line 1; Figures 7A and 7B; and Example 8 provide the descriptive support for these new claims. However, these parts of the specification do not describe an immunogenic or diagnostic composition comprising a polypeptide comprising at least eight consecutive amino acids from SEQ ID NO: 4 being present in the composition, with or without being associated with a detectable label or system, in an amount effective to induce antibodies that recognize SEQ ID NO: 4 in a mammalian subject, wherein the antibodies also recognize an approximately 85 kD outer membrane protein in any multiple *Neisseriae gonorrhoeae* and *meningitidis* strains, or the specific strains recited in claims 35, 36, 45 and 46. The epitope recited in lines 24-28 of page 25 of the specification is not identified to be an eight consecutive amino acid-long epitope from SEQ ID NO: 4 of immunogenic and diagnostic significance. Example 8 is limited to Fab fragments from an antiserum to 'the first 178 amino acids of SEQ ID NO: 2', but not an eight consecutive amino acid-long epitope from SEQ ID NO: 4 of immunogenic and diagnostic significance. Figures 7A and 7B do not show the reactivity of antibodies induced in a mammalian subject by an eight consecutive amino acid-long epitope from 'SEQ ID NO: 4'. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

38) Claims 37 and 43 are rejected under are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claims 37 and 43 are drawn to the immunogenic and the diagnostic composition of claims 21 and 25 respectively 'wherein said polypeptide lacks the signal sequence spanning amino acids 1-21 of SEQ ID NO: 4'. Applicants state that Figures 2A and 5; lines 26-30 of page 9; lines 4-8 of page 13; and page 20, line 24 through page 21, line 4 of the specification provide the descriptive support for the new claims. However, Figure 2A and lines 26-30 of page 9; lines

4-8 of page 13; and page 20, line 24 through page 21, line 4 of the specification are unrelated to the instantly recited 'SEQ ID NO: 4'. Figure 5 does not represent the polypeptide of SEQ ID NO: 4 lacking 1-21 amino acids. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

39) Claims 50-53 are rejected under are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claim 50 is drawn to 'an immunogenic composition comprising a polypeptide comprising an amino acid sequence having 95% or greater sequence identity with the entire sequence of amino acids of SEQ ID NO: 4, said polypeptide present in said composition in an amount effective to induce antibodies that recognize SEQ ID NO: 4 in a mammalian subject, and a pharmaceutically acceptable carrier'. New claim 51 is drawn to the immunogenic composition of claim 50, 'said polypeptide lacking the signal peptide spanning amino acids 1-21 of SEQ ID NO: 4'. New claim 52 is drawn to the immunogenic composition of claim 50, 'wherein polypeptide contains one to four conservative amino acid replacements in the amino acid sequence of SEQ ID NO: 4'. New claim 53 is drawn to the immunogenic composition of claim 50, 'wherein said polypeptide is SEQ ID NO: 4 with an amino acid residue change selected from among the amino acid residue differences between SEQ ID NO: 4 and SEQ ID NO: 2 as illustrated in FIG. 5'. Applicants state that page 16, lines 17-20 and page 19, line 27 et seq.; Figures 2A and 5 and page 9, lines 26-30; original claim 2 and page 19, lines 19-23; and Figure 5, page 16, lines 7-20, and page 12, lines 1-10 provide the descriptive support for the new claims 50, 51, 52 and 53 respectively. However, these parts of the specification do not describe an immunogenic composition comprising a polypeptide of 95% or greater sequence identity with the entire

sequence of SEQ ID NO: 4, wherein the polypeptide is present in an amount effective to induce antibodies that recognize SEQ ID NO: 4 in a mammalian subject and a pharmaceutically acceptable carrier, with or without lacking 1-21 amino acids of SEQ ID NO: 4, with or without containing one to four amino acid replacements in SEQ ID NO: 4 or an amino acid residue change selected from among the amino acid residue differences between SEQ ID NO: 4 and SEQ ID NO: 2 as illustrated in Figure 5. Therefore, the above-identified limitations in the claims are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants should specifically point out the support for any amendments made to the disclosure. See MPEP 714.02 and 2163.06. Applicants are respectfully requested to point to specific lines and pages that provide descriptive support in the specification as filed, for the above-identified limitation(s), or remove the new matter from the claim(s).

Rejection(s) under 35 U.S.C § 112, Second Paragraph

40) Claims 21, 25, 30-46 and 50-53 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

(a) Claims 21, 25 and 50 are vague, indefinite and/or appear to lack proper antecedent basis in the recitation: 'SEQ ID NO: 4' (see line 5 of claim 21 and line 4 of claim 25), because it is not clear whether this is the same 'SEQ ID NO: 4' recited earlier in the claim. If it is, for proper antecedence, Applicants should replace the limitation with the limitation --said SEQ ID NO: 4--.

(b) Analogous criticism and rejection applies to claims 51 and 53.

(c) Claim 25 is confusing in that the polypeptide in the claimed 'diagnostic' composition is recited to be associated with a 'detectable label or detection system' and at the same is recited as inducing antibodies 'in a mammalian subject'. Is this a labeled diagnostic polypeptide meant for eliciting immunogenicity, or that induces antibodies in a mammalian subject?

(d) Claims 32-36, 42 and 44 are incorrect in the limitation: '*Neisseriae*' *gonorrhoeae* or '*Neisseriae*' *meningitidis*. To be consistent with the art-accepted term, it is suggested that

Applicants replace the limitation with --*Neisseria*--.

(e) Claims 34 and 44 are incorrect in the limitation '*meningitidis* strain...'. To be consistent with the practice in the art, it is suggested that Applicants replace the limitation with --*Neisseria meningitidis*--.

(f) Claims 37, 43, 50 and 53 are vague and indefinite in the limitation 'SEQ ID NO: ...' without particularly reciting that it is --the amino acid sequence of SEQ ID NO: ...--.

(g) Claim 38 is confusing in the limitation: 'composition according to claim 25, which is a diagnostic kit'. It is unclear how a 'composition' can be a 'kit' as opposed a composition being comprised in a kit.

(h) Claims 25 and 39 are vague and indefinite in the limitation: 'associated with nitrocellulose paper or latex support', because it is unclear what is encompassed in the limitation 'associated with'. The nature of the 'association' is not clear. Is this a covalent association, non-covalent association, chemical association, genetic or recombinant association?

(i) Claims 34 and 44 are vague and indefinite in the limitation 'approximately 85 kD', because it is unclear what is encompassed in the limitation 'approximately'. Is 60 kD or 100 kD encompassed within the scope of the limitation?

(j) Claim 53 is vague, indefinite and confusing in the recitation: 'an amino acid residue change selected from among the amino acid residue differences between SEQ ID NO: 4 and SEQ ID NO: 2 as illustrated in FIG. 5' (see lines 1 and 2), because it is unclear what exactly is the precise structure of the claimed polypeptide. The metes and bounds of the claim is indeterminate.

(k) Claim 53 is vague, indefinite and confusing in the recitation: 'an amino acid residue change selected from among the amino acid residue differences between SEQ ID NO: 4 and SEQ ID NO: 2 as illustrated in FIG. 5' (see lines 1 and 2), because it fails to point out what is included or excluded by the claim language. According to M.P.E.P 2173.05(s), where possible, claims are to be complete in themselves. Incorporation by reference to Tables, and Figures, or Examples as in the instant case, is a necessity doctrine, not for Applicants' convenience. See *Ex parte Fressola*, 27 USPQ2d 1608, 1609 (Bd. Pat. App. & Inter. 1993).

(l) Claims 35 and 45, which depend from claims 34 and 44 respectively, are confusing in scope and antecedence in the limitation: 'said *Neisseriae meningitidis*', because claims 34 and 44 do not include limitation '*Neisseriae meningitidis*'.

(m) Claim 52 appears to lack proper antecedent basis in the limitation: wherein 'polypeptide' contains (see line 1). Claim 52 depends from claim 50, which already recites 'a polypeptide'. Is the polypeptide recited in line 1 of claim 52 a polypeptide that is different from the one recited in line 1 of claim 50?

(n) Claims 30-46 and 51-53, which depend directly or indirectly from claim 21, 25 or 50, are also rejected as being indefinite because of the indefiniteness identified above in the base claim.

Rejection(s) under 35 U.S.C § 102

41) The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office Action:

> A person shall be entitled to a patent unless –
> **(e)** the invention was described in-
> **(2)** a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

42) Claims 21, 25, 30-36, 39-42, 44-46, 50 and 52 are rejected under 35 U.S.C. § 102(b) as being anticipated by Wetzler *et al.* (*J. Exp. Med.* 169: 2199-2210, 1989) as evidenced by Hunter (US 5,554,372) or Berinstein *et al.* (US 20040033234) and Harlow *et al.* (*In*: *Antibodies: A Laboratory Manual*. Cold Spring Harbor Laboratory, New York, pages 471-510, 1988).

It is noted that the polypeptide recited in claims 21, 25 and 50 is not required to be isolated and/or purified. It is further noted that the transitional recitation in the claims 'comprising' is open-ended claim language and therefore does not exclude additional, unrecited elements. See MPEP 2111.03 [R-1].

The recitation 'approximately 85 kD' in claims 34 and 44 is interpreted in this rejection as encompassing 85 $\pm$ 10 kD.

It is further noted that the instant specification identifies the instantly recited amino acid sequence of SEQ ID NO: 4 from *N. meningitidis* Omp85 to be 95% identical to *N. gonorrhoeae* Omp85. See first full paragraph on page 47 of the specification.

Wetzler *et al.* taught a composition comprising 5 x 10^8 microorganisms of strain F62 of *N. gonorrhoeae* (i.e., whole cells comprising an amount effective to induce antibodies) in GC-Hepes solution (i.e., a pharmaceutically acceptable carrier). See third full paragraph on page 2201. Wetzler *et al.* taught whole cell lysates of *N. gonorrhoeae* strain F62, which are associated with a

Western blot system (i.e., a suitable detection system). See Figure 3; and first full paragraph on page 2201. The whole cell lysates showed a protein band at a molecular weight of approximately 85,000 by SDS-PAGE (see Figure 2). The whole cells or cell lysates of strain F62 of *N. gonorrhoeae* contained in the prior art composition are expected to inherently and necessarily comprise the instantly recited polypeptide comprising at least eight consecutive amino acids from SEQ ID NO: 4, or having 95% sequence identity with the entire sequence of amino acids of SEQ ID NO: 4 having 1-4 conservative amino acid replacements therein, including the one recited in claim 52. A bacterial whole cell or cell lysate composition serves inherently as an immunogenic composition and induces antibodies that recognize the polypeptides present thereon. Although Wetzler *et al.* are silent about the SEQ ID number as recited in the instant claims, since the prior art strain F62 of *N. gonorrhoeae* used for the production of the prior art whole cell or cell lysate composition is the same F62 strain of *N. gonorrhoeae* used by Applicants to identify the recited Omp85 polypeptide by Western blot (see Figure 6; and last full paragraph on pages 10 and 51 of the instant specification), the prior art whole cell or cell lysate composition is viewed as necessarily comprising the recited polypeptide, and therefore is expected to have an amino acid sequence with 95% or greater sequence identity to SEQ ID NO: 4. Since the approximately 85 kD polypeptide of the prior art comprised in the whole cells or cell lysates of the F62 strain of *N. gonorrhoeae* and the Omp85 present on Applicants' F62 strain of *N. gonorrhoeae* are one and the same, the prior art protein is expected to necessarily have the same immunogenic function or the ability to induce antibodies that recognize the approximately 85 kD outer membrane protein in one or more of the *N. gonorrhoeae* or *N. meningitidis* strains recited in claims 35, 36, 45 and 46. Furthermore, the prior art whole cells or cell lysates of the F62 strain of *N. gonorrhoeae* comprising the Omp85 amino acid sequence of SEQ ID NO: 4 are expected to intrinsically comprise a second homologous polypeptide antigen naturally fused thereto as well as the cell wall lipopolysaccharide (LPS), which LPS is known in the art to intrinsically serve as a natural adjuvant. For instance, see first paragraph under Example 17 of Hunter; and section [0097] of Berinstein *et al.*

That the prior art Western blot system includes the polypeptide-associated nitrocellulose paper is inherent from the teachings of Wetzler *et al.* in light of what is well known in the art. For instance, Harlow *et al.* taught that the transfer of proteins from the SDS gel during immunoblotting involves pacing on the nitrocellulose membrane (see pages 484-487).

Claims 21, 25, 30-36, 39-42, 44-46, 50 and 52 are anticipated by Wetzler *et al.* Hunter, Berinstein *et al.* or Harlow *et al.* is **not** used as a secondary reference in combination with Wetzler *et al.*, but rather is used to show that every element of the claimed subject matter is disclosed by Wetzler *et al.* with the unrecited limitation(s) being inherent as explained above. See *In re Samour* 197 USPQ 1 (CCPA 1978).

43) Claims 21, 25 and 30-46 are rejected under 35 U.S.C § 102(e)(2) as being anticipated by Rubenfield *et al.* (US 6,551,795, filed 02/18/1998).

Rubenfield *et al.* disclosed an isolated or substantially pure 648 amino acid-long polypeptide having the amino acid sequence of SEQ ID NO: 24628 comprising the eight consecutive amino acids, VRVETADG, which eight consecutive amino acids are identical to the eight amino acid-long fragment, VRVETADG, located at amino acid positions 74 through 81 of the instantly recited SEQ ID NO: 4. A therapeutic or prophylactic vaccine comprising the polypeptide and a pharmaceutically acceptable carrier as well as a diagnostic composition, a diagnostic reagent capable of providing a detectable signal comprising the polypeptide that is modified with a label, such as a radioisotope or a fluorescent label, is taught. A diagnostic kit comprising the polypeptide present on immobilization means such as particles, supports, wells, dipsticks, and the nitrocellulose papers containing the polypeptide, is also disclosed. The polypeptide exists as a recombinant fusion protein fused to a polyhistidine sequence, i.e., fused to a second polypeptide. The polypeptide is co-administered with an adjuvant. The polypeptide does not contain amino acids 1-21 of the instantly recited SEQ ID NO: 4. See the attached sequence alignment report; and Sequence Listing; third full paragraph in column 5; first three paragraphs in column 6; lines 18-29 in column 11; and 'Vaccine Formulations for P. aeruginosa .... Polypeptides' in columns 37-40; section 'Kits Containing ... Polypeptides of the Invention' and lines 1-5 in column 42; Since the isolated prior art polypeptide is not fully purified, it is expected to inherently contain at least a second *P. aeruginosa* protein or polypeptide contaminant (i.e., second polypeptide or protein antigen from a pathogenic species heterologous to *Neisseria meningitidis* or *Neisseria gonorrhoeae*).

Claims 21, 25 and 30-46 are anticipated by Rubenfield *et al.*

44) Claims 21, 25, 31-36, 38-42, 44-46, 50, 52 and 53 are rejected under 35 U.S.C § 102(b) as being anticipated by Manning *et al.* (*Microb. Pathogenesis.* 25: 11-22, July 1998 - Applicants'

IDS) (Manning *et al.*, 1998) in light of Richarme *et al.* (*Ann. Microbiol.* 133A: 199-204, 1982 – Applicants' IDS).

It is noted that the authorship of Manning *et al.* (1998) and the inventorship of the instant application are non-identical.

Because of the new matter identified above, the instant claims are granted the effective filing date of the instant application, i.e., 06/26/03.

Manning *et al.* (1998) taught an isolated outer membrane protein (i.e., Omp85 polypeptide) of *N. meningitidis* comprising the 797 amino acid-long amino acid sequence with the Genebank accession No. AF021245 that has 100% sequence identity with the instantly recited SEQ ID NO. 4 of the instant invention. Manning's protein comprises at least eight consecutive amino acid residues of the instantly recited SEQ ID NO: 4. See especially Figure 5 and abstract of Manning *et al.* (1998); and the sequence search report attached to the Office Action mailed 08/05/05. The protein taught by Manning *et al.* (1998) is a recombinant protein, or a fusion protein fused to a second polypeptide such as MBP or maltose binding protein. See page 15; 'Materials and Methods'; and page 20 under 'Production of a MBP/Omp85 fusion protein'. A composition (i.e., immunogenic composition) comprising 0.1 to 1.0 mg of the purified MBP/Omp85 contained in an adjuvant (i.e., pharmaceutically acceptable carrier) for use in an immunization procedure is taught. See page 20, right column, first full paragraph. The Neisserial Omp85 proteins are believed to be important immunological targets of the host immune response (see first paragraph under 'Conclusions'). Manning *et al.* (1998) taught that the meningococcal Omp85 protein is 95% identical to the gonococcal Omp85 (see page 15, left column; and Figure 2), and thus Manning *et al.* (1998) taught a homologue polypeptide of the instantly recited SEQ ID NO: 4 that has at least 85% identity to SEQ ID NO: 4 or that contains conservative amino acid amino acid replacements as recited. Manning *et al.* (1998) further taught that Omp85 homologues are identified in all of the commensal neisserial species tested and that the Omp85 protein is conserved among all the neisserial species (see paragraph bridging pages 15 and 16; and Figure 6), thus indicating the inherent ability of the prior art polypeptide to induce antibodies cross-reactive with multiple *Neisseriae* strains. That maltose binding protein fusion partner taught by Manning *et al.* is an antigen from a heterologous pathogenic species is inherent from the teaching of Manning *et al.* in light of what is well known in the state of the art. For instance, Richarme *et al.* taught the source of maltose binding protein to be *E. coli* bacteria

(see abstract). The polypeptide induced anti-Omp85 antisera in rabbits which recognized the Omp85 polypeptide in *N. meningitidis* strains HH, MP78, MP3 and MP81 and *N. gonorrhoeae* strains FA19, FA635, FA1090, JS1, MS11 and F62 by the diagnostic Western blot analysis that used PVDF membrane (see Figure 6 and 7). The limitation 'diagnostic kit' is viewed as representing the intended use of the claimed product and is not given any patentable weight.

The teachings of Manning *et al.* anticipate the instant claims. Richarme *et al.* is **not** used as a secondary reference in combination with Manning *et al.*, but rather is used to show that every element of the claimed subject matter is disclosed by Manning *et al.*, because Richarme *et al.* teach maltose binding protein to be of *E. coli* (heterologous species) origin. See *In re Samour* 197 USPQ 1 (CCPA 1978).

Claims 21, 25, 31-36, 38-42, 44-46, 50, 52 and 53 are anticipated by Manning *et al.*

Remarks

45) Claims 21, 25, 30-46 and 50-53 stand rejected.

46) Applicants' amendment necessitated the new ground(s) of rejection presented in this Office Action. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 C.F.R 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

47) Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center to the Rightfax number (571) 273-8300 which receives transmissions 24 hours a day and 7 days a week.

48) Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAG or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the

PAIR system, see http://pair-direct.uspto.Mov. Should you have questions on access to the Private PAA system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

49) Any inquiry concerning this communication or earlier communications from the Examiner should be directed to S. Devi, Ph.D., whose telephone number is (571) 272-0854. The Examiner can normally be reached on Monday to Friday from 7.15 a.m. to 4.15 p.m. except one day each bi-week, which would be disclosed on the Examiner's voice mail system. A message may be left on the Examiner's voice mail system.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lynette Smith, can be reached on (571) 272-0864.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

May, 2006

S. DEVI, PH.D.
PRIMARY EXAMINER

SEQ ID NO. 4 oligo.

RESULT 8
US-09-252-991A-24628
; Sequence 24628, Application US/09252991A
; Patent No. 6551795
; GENERAL INFORMATION:
; APPLICANT: Marc J. Rubenfield et al.
; TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
; TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: 107196.136
; CURRENT APPLICATION NUMBER: US/09/252;991A
; CURRENT FILING DATE: 1999-02-18
; PRIOR APPLICATION NUMBER: US 60/074,788
; PRIOR FILING DATE: 1998-02-18
; PRIOR APPLICATION NUMBER: US 60/094,190
; PRIOR FILING DATE: 1998-07-27
; NUMBER OF SEQ ID NOS: 33142
; SEQ ID NO 24628
; LENGTH: 648
; TYPE: PRT
; ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-24628

Query Match 1.0%; Score 8; DB 2; Length 648;
Best Local Similarity 100.0%; Pred. No. 38;
Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 74 VRVETADG 81
||||||||
Db 94 VRVETADG 101